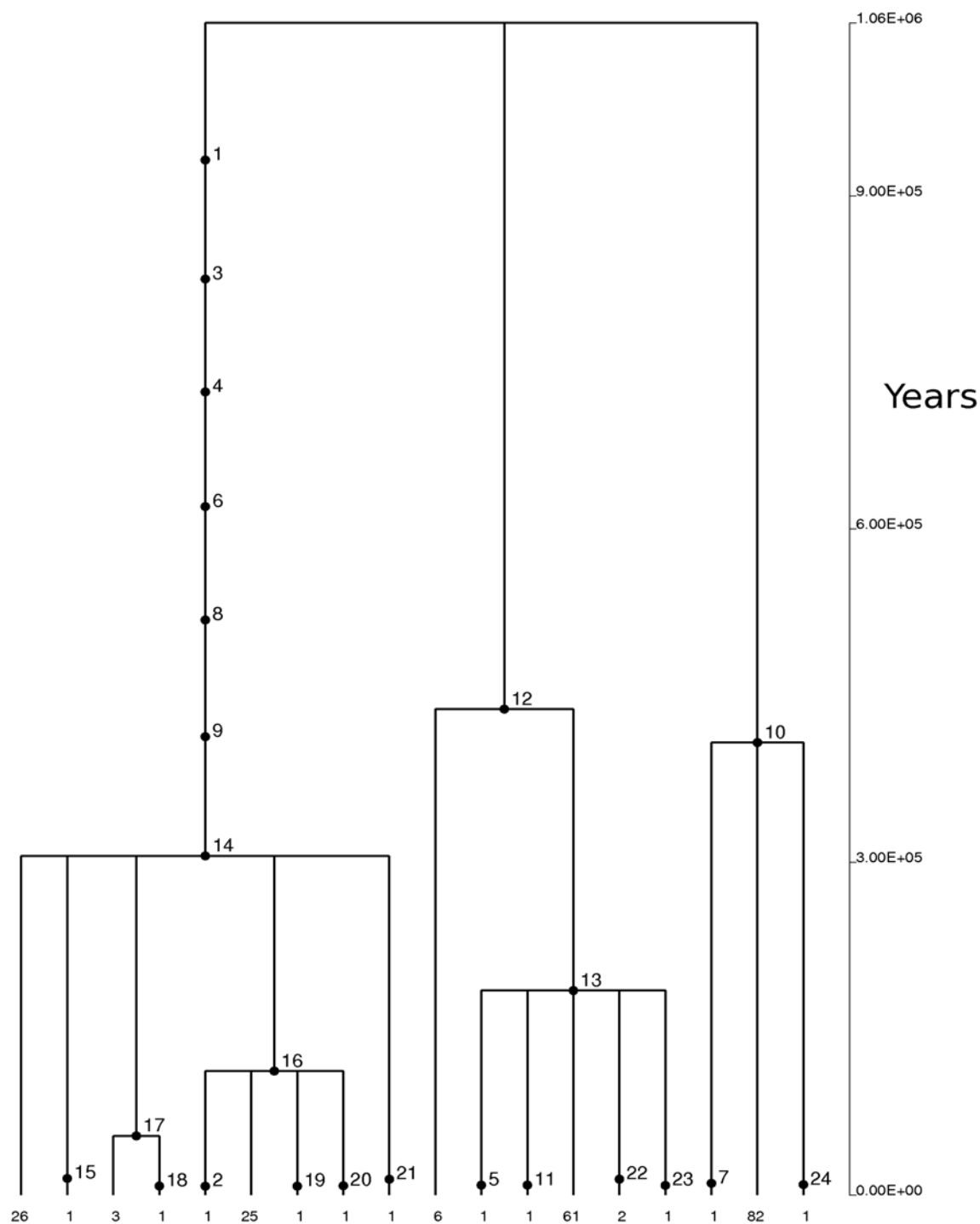


**Supplemental Data**

# **Diverse Evolutionary Histories for $\beta$ -adrenoreceptor Genes in Humans**

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**Figure S1. Estimated Tree for *ADRB2* Gene Derived by GENETREE Analysis**

Mutations are represented as black dots and named for their physical position along gene region.

Mutation numbering does not correspond to the one shown in table S1 since, as reported in the text, 16 SNPs were removed as they violated the infinite site model. The absolute frequency of each haplotype is also reported.

**Table S1. Estimated Haplotypes for *ADRB2* Gene Region**

YRI1TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI2TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI3TCCACACTCATTATCCAGCGCTTATATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI4TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI5TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI6TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI7TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI8TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI9TCCACCCTCATTATCCAGCGCTTAGATCAGCGCTCCGAGGCGTAGCGGGCCCCGTTGGCCGGT  
 YRI10TCGGCATAACCTACTCTGCGCTTAGGATCACCCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI11TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTAGCCGGT  
 YRI12TCGGCATAATCTTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI13TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI14TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI15TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 YRI16TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACAGCCTTAGCCGGT  
 YRI17TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI18TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI19TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI20TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI21TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI22TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI23TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCAAGGCGCAGCGGGCCCCGTTGGCCGGT  
 YRI24TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI25TCCACACTCATTATCCAGCACTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 YRI26TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI27TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI28TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI29TCCACACTCATTATCCAGCGCTTAGATCGCTGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI30TCCACACTCATTATCCAGCGCTTAGATCGCTGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI31TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI32TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI33TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI34TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACAGCCTTAGCCGGT  
 YRI35TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI36TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI37TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI38TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI39TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI40TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI41TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 YRI42TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACTCTTAGCCGGT  
 YRI43TCCACACTCATTATCCAGCGCTTAGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI44TCCACACTCATTATCCAGCGCTTAGATCGCTGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI45TCCACACTCATTATCCAGCGCTTAGATCACCCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI46TCGGCATAACCTTGTCTCTGCGCTTGGATCGCCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 YRI47TCCACACTCATTATCCAGCGCTTAGATCGCCGCTTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 YRI48TCCACACTCATTATCCAGCGCTTAGATCGCTGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 EU1TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 EU2TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 EU3TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU4TCGGCATAACCTACTCTGCGCTTGGGTCGCCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 EU5TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU6TCGACACTCATTATCCAGTGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU7TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU8TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 EU9TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU10TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU11TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 EU12TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTGGCCGGT  
 EU13TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU14TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU15TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 EU16TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGCGCAGCGCGCCCCGTTAGCCGGT  
 EU17TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU18TCGGCATAACCTACTCTGCGCTTGGGTCACCGCTCCGAGGTGTAACGCGCCCCGTTAGCCGGT  
 EU19TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTAGCCGGT  
 EU20TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGCGCAGCGGGCCCCGTTGGCCGGT  
 EU21TCCACACTCATTATCCAGCGCTTAGATCGCCGCCCCGAGGTGTAACGCGGGCCCCGTTAGCCGGT  
 EU22TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT  
 EU23TCGGCATAACCTACTCAGCGTTAGGGTCGCCGCTCCGAGGTGTAGCGCACACCCTTAGCCGGT





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Each row shows population code, haplotype ID and alleles for each chromosome. SNP positions refer to DQ09484 GenBank accession annotation and are as follow:

121 403 493 626 761 912 929 933 956 969 1061 1272 1526 1587 1833 1946 2402 2434 2482 2567  
2689 2722 2791 2877 2937 3197 3381 3521 3566 3752 3814 3815 3816 3853 3918 3943 3958 3985  
3990 4145 4173 4197 4200 4263 4265 4285 4297 4298 4471 4710 4742 4878 5059 5272 5389 5398  
5458 5626 5836 5839 5877 5922 5999

**Table S2. Estimated Haplotypes for *ADRB3* Gene**

YRI 1 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCATCTCGG  
 YRI 2 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 3 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 4 GGGAGGAGGATTCGAGCCGGGCCCCCGCTGATTTTTCTCGG  
 YRI 5 GGGAGGAGGATCCGAGCCGAGCCCCGCTGACCTTTCTCGG  
 YRI 6 AGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 7 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 8 GGGAGGAGGATCCGAGCCGGGCCCCAGCTGATTCTTCTCGG  
 YRI 9 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 10 GGGAGGAGGATCCGAGCCGAGCCCCGCTGACCTTTCTCGG  
 YRI 11 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGA  
 YRI 12 AGCAGGAGCATCCGAGCCGGGCTCCGCTGACTTTTCTCGG  
 YRI 13 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 14 GGGAGGAGGATTCGAGCCGGGCCCCCGCTGATTTTTCTCGG  
 YRI 15 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 16 GGGAGGAGGATCCGAGCCGGGCCACGCTGATTCTTCTCGG  
 YRI 17 GGGAGGAGGATCCGAGCCGGGCTCCGCAGACTTTTCTCGG  
 YRI 18 GGGAGGAGGATTCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 19 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 20 AGGAGGAGCATCCGAGCCGGGCTCCGCTGACTTTTCTCGG  
 YRI 21 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 22 GGGAGGAGGATCCGAGCCGGGCCCCCGCTTATTCTTCTTGG  
 YRI 23 GGGAGGAGGACCCTAGCCGGGCCCCCGCTTACCCTTCTCGG  
 YRI 24 GAGAGGAGGACCCTAGCTGGCCCCCGCTGTCCTTTCTCGG  
 YRI 25 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 26 GGGAGGAGGATCTGAGCCGGGCCAGCTGACTCTCCTCGG  
 YRI 27 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 28 GGGAGGAGGACCCTAGCCGGGCCCCCGCTGTCCTTTCTCGG  
 YRI 29 GGGAGGAGGATCCGAGCCGGGCCAGCTGATTCTTCTCGG  
 YRI 30 GGGAGGAGGATCCGAGCCGGGCTCCGCAGACTTTTCTCGG  
 YRI 31 GGGAGGAGGACCCTGGCCGGGCCCCCGCAGACCTTTCTCGG  
 YRI 32 GGGTGGAGGATCCGAGCCGGGCTCCGCAGACTTTTTTCTCGG  
 YRI 33 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 34 GGGAGGAGGATCCGAGCCAGGCTCCATTGACTTTTCCCGG  
 YRI 35 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 36 GGGTGGAGGATCCGAGCCGGGCTCCGCAGACTTTTTTCTCGG  
 YRI 37 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 38 GGGAGGAGGGTCCGAGCCGGGCTCCGCTGACTTTTCCCGG  
 YRI 39 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 40 GGGAGGAGGATCCGAGCCGGGCCCCCGCTTACCCTTCTCGG  
 YRI 41 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 42 GGGAGGAGGATCCGAGCCGGGCCAGCTGATTCTTCTCGG  
 YRI 43 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 44 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 45 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 46 GGGAGGAGGATCCGAGCCGGGCCAGCTGATTCTTCTCGG  
 YRI 47 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 YRI 48 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 EU 1 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 EU 2 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 EU 3 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 EU 4 GGGAGGAGGACCCTAGCCGGGCCCCCGCTGTCCTTTCTCGG  
 EU 5 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 EU 6 GGGAGGAGGATCCGAGTCGGGCCCCCGCTGATTCTTCTCGG  
 EU 7 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
 EU 8 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG

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EU 9 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 10 GGGAGGAGGATCCGAGTCGGGCCCCCGCTGATTCTTCTCGG  
EU 11 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 12 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 13 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 14 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 15 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 16 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 17 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 18 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 19 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
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EU 21 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 22 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 23 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 24 GGGAGGAGGACCC TAGCCGGGCCCCCGCTGTCCTTTCTCGG  
EU 25 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 26 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 27 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 28 GGGAGGAGGACCC TAGCCGGGCCCCCGCTGTCCTTTCTCGG  
EU 29 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 30 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 31 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 32 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 33 GGGAGGAGGATCCGAGTCGGGCCCCCGCTGATTCTTCTCGG  
EU 34 GGGAGGAGGACCC TAGCCGGGCCCCCGCTGTCCTTTCTCGG  
EU 35 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 36 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCAG  
EU 37 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 38 GGGAGGAGGATCCGAGTCGGGCCCCCGCTGATTCTTCTCGG  
EU 39 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 40 GGGAGGAAGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 41 GGGAGGAGGACCC TAGCCGGGCCCCCGCTGTCCTTTCTCGG  
EU 42 GGGAGGAGGACCC TAGCCGGCTCCCGCTGTCCTTTCTCGG  
EU 43 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 44 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 45 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG  
EU 46 GGGAGGAGGATCCGAGCCGGGCCCCCGCTGATTCTTCTCGG

Each row shows population code, haplotype ID and alleles for each chromosome. SNP positions refer to DQ104441 GenBank accession annotation and are as follow:  
273 680 1109 1191 2555 2773 2776 3112 3792 3826 4134 5001 5072 5163 5231 5308 5518 5584 5819  
6238 6446 6483 6553 6787 6862 6873 7076 7210 7491 7502 7839 8756 9284 9476 9648 10395 10426  
10481 10629 10984



**Table S3. Observed to Expected Heterozygosity Values for *ADRB2* Gene Region in Five Human Populations**

<b>Population</b>	<b>Obs/exp heterozygosity</b>	<b>Rank</b>
YRI	0.95	0.25
EU	0.82	0.045
EAS	0.78	0.031
NSA	0.85	n.a.
AUA	1.09	n.a.

For each population the table shows the observed to expected heterozygosity ratio with its percentile rank calculated from a distribution of 238 5kb regions derived from NIEHS genes. For NSA and AUA populations these data were not available